the converter, comprising a number of branches with valves, is connected between the rotor windings of the main machine and the regulating machine and, during operation, it is arranged as an ac-to-ac converter and, during starting, it is arranged as an ac polyphase coupler or as an ac phase-angle/voltage regulator or as an ac short-circuit coupler and, during controlled braking and stopping, it is arranged as an ac pol phase coupler [(51b)] or as an ac phase-angle/voltage regulator, or as an ac short-circuit coupler, and

the stator winding of the main machine is connected to an ac power network.

2. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein, when the machine operates as an electric generator, a constant frequency of the voltage of the main machine supplied to the power network is maintained at varying speed by the ac-to-ac converter supplying the rotor winding of the main machine with a voltage with a frequency corresponding to the difference frequency f_c, between the synchronous frequency f_r, of the electric generator at the actual speed n_r, and the normal frequency f_s, of the power network.

3. (Amended) A constant-frequency machine with a varying /variable speed according to claim 1, wherein, when the machine operates as a motor, the desired speed of the machine is obtained by the ac-to-ac converter supplying the rotor winding of the main machine with a voltage with a frequency corresponding to the difference frequency f_c between the frequency f_s of the power supply network and the synchronous frequency f_r, of the machine at the desired speed n_r.

4. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the transformation ratio between the stator winding and the rotor winding is adapted to the ratio between the voltage of the power network and the maximum allowed voltage of the converter with one valve in each of the branches of the ac-to-ac converter.

5. (Amended) A constant-frequency machine with a varying /variable speed according to claim 1, wherein the stator winding of the main machine is made from at least one cable.

6. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein, when the stator winding of the main machine made from at least one cable, the cable/cables is/are of a high-voltage type.

7. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the stator winding of the main machine is directly connected to the ac power network.

8. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the stator winding of the main machine is directly connected to the ac power network via a transformer.

9. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the stator winding of the main machine is designed as a 3-phase winding, a 2-phase winding, a 2x3-phase winding, or of an optional number of phase windings.

10. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the stator of the main machine, besides the stator winding which is connected to the ac voltage network, is arranged with an auxiliary winding for generating ac voltage auxiliary power.

11. (Amended) A constant-frequency machine with a varying /variable speed according to claim 1, wherein the rotor winding of the main machine is designed as a 3-phase winding, a 2-phase winding, a 2x3-phase winding, or of an optional number of phase windings.

12. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the rotor winding of the regulating machine is designed as a 3-phase winding, a 2-phase winding, a 2x3phase winding, or of an optional number of phase windings.

13. (Amended) A constant-frequency machine with a varying/ variable speed according to claim 1, wherein the stator of the regulating machine is designed with a dc winding.

14. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the stator winding of the regulating machine is designed as an ac winding for a 3-phase winding, a 2-phase winding, a 2x3-phase winding, or of an optional number of phase windings.

15. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the ac-to-ac converter is adapted to operate with varying both input and output frequencies.

16. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the ac-to-ac converter is adapted to operate with a varying ratio between its input and output frequencies.

17. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the ac-to-ac converter is self-commutated.

18. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the ac-to-ac converter is machine-commutated.

19. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the ac-to-ac converter is commutated by the regulating machine.

20. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the ac-to-ac converter is designed as a matrix converter.

21. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the ac-to-ac converter is designed as a direct converter with antiparallel-connected thyristor bridges.

22. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein series capacitors are connected between the ac-to-ac converter and the rotor windings of the regulating machine.

23. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein shunt capacitors are connected between the ac-to-ac converter and the rotor windings of the regulating machine.

24. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the capacitors are connected in series and/or in parallel with the rotor windings of the regulating machine.

25. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the ac-to-ac converter is designed with an intermediate dc/dc voltage link.

26. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein the regulating machine, under controlled starting/braking/stopping is arranged as a starting/braking motor, the stator winding of which is connected to an external frequency converter and the rotor winding of which is short-circuited by the converter of the constant-frequency machine connected as an ac short-circuit coupler.

27. (Amended) A constant-frequency machine with a varying /variable speed according to claim 1, wherein during starting/ stopping, the stator winding of the main machine is connected to the power network, the rotor winding of the main machine is connected to the rotor winding of the regulating machine via the converter arranged as an ac polyphase coupler, and the stator winding of the regulating machine is connected to external controllable resistors.

28. (Amended) A constant-frequency machine with a varying/variable speed according to claim 1, wherein during controlled starting/braking/stopping, the stator winding of the main machine is connected to the power network, the rotor winding of the main machine is connected to the rotor winding of the regulating machine via the converter arranged as an ac phase-angle/voltage regulator, and the stator winding of the regulating machine is connected to external fixed resistors.

29. (Amended) A method for using a converter, rotating with the shaft, arranged between the rotor windings of a main machine and a regulating machine of a constant-frequency machine, the main machine of which is provided with a stator winding connected to a power network according to claim 1, which method comprises

during operation, the converter is controlled as an ac-to-ac converter, and

during starting, the converter is connected as an ac polyphase coupler or as an ac phase-angle/voltage regulator, or as an ac short-circuit coupler, and

during controlled braking and stopping, the converter is connected as an ac polyphase coupler or as an ac phase-angle/voltage regulator, or as an ac short-circuit coupler.

30. (Amended) A method for using the converter, rotating with the shaft, according to claim 29 when the constant-frequency machine during operation is used as an electric generator, wherein the ac-to-ac converter is adapted to supply the rotor windings of the main machine with a voltage with a frequency corresponding to the difference frequency between the synchronous frequency of the electric generator at the actual speed and the nominal frequency of the power network.

31. (Amended) A method for using the converter, rotating with the shaft, according to claim 29 when the constant-frequency machine during operation is used as a motor, wherein the ac-to-ac converter is adapted to supply the rotor winding of the main machine with a voltage with a frequency corresponding to the difference frequency between the frequency of the power supply network and the synchronous frequency of the machine at the desired speed.

32. (Amended) A method for using the converter, rotating with the shaft, according to claim 29 during starting and stopping, wherein the ac polyphase coupler is adapted for direct connection of the rotor windings of the main machine and the rotor windings of the regulating machine.

33. (Amended) A method for using the converter, rotating with the shaft, according to claim 29 during starting and controlled braking and stopping, wherein the ac phase-angle/voltage regulator is adapted for transmitting, in a controlled manner, the rotor losses of the main machine via the regulating machine to external resistors.

34. (Amended) A method for using the converter, rotating with the shaft, according to claim 29 during starting/braking and/or stopping, wherein the ac short-circuit coupler is adapted to short-circuit the rotor windings of the regulating machine.

Please remove multiple dependencies from the claims. If any multiple dependent claims remain after amendment, such multiple dependent claims should refer only to the next previous claim.

REMARKS

This Amendment is for the purpose of removing multiple dependencies and reference numerals from the claims and for placing the claims in appropriate U.S. format.

Allowance of the claims is earnestly solicited.

If filing this paper or any accompanying papers necessitates additional fees not otherwise provided for, the undersigned authorizes the Commissioner to deduct such additional fees from Deposit Account No. 04-2223.

Respectfully submitted,

John P. De Luca
Registration No. 25,505

DYKEMA GOSSETT PLLC
1300 I STREET N.W.
SUITE 300 W
WASHINGTON, D.C. 20005
(202) 522 8600

DC01\\ 43434.1
ID\ JPD